

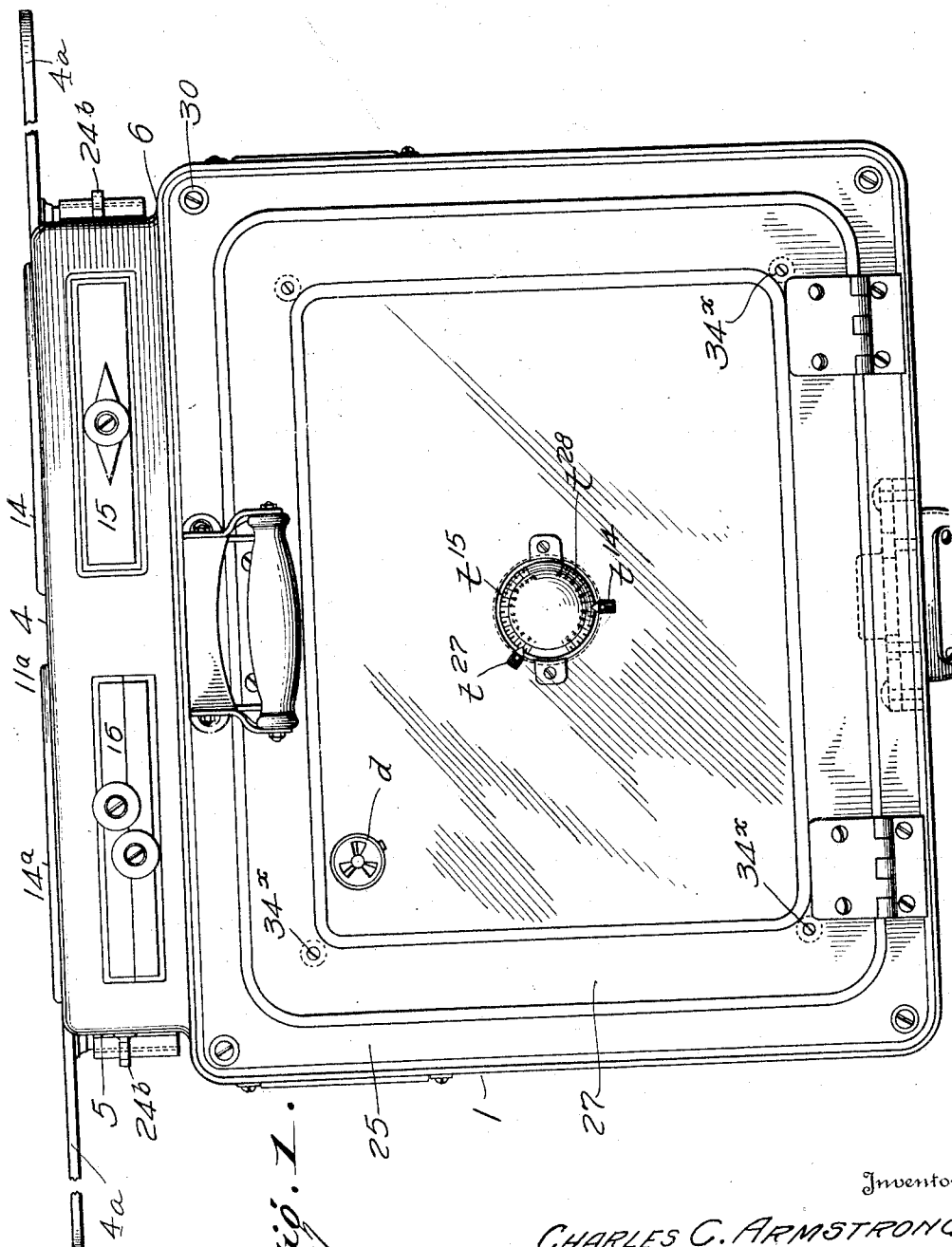
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STOVE

Filed March 24, 1927

5 Sheets-Sheet 1



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May 15, 1928.

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1,669,803

STOVE

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5 Sheets-Sheet 2

Fig. 2.

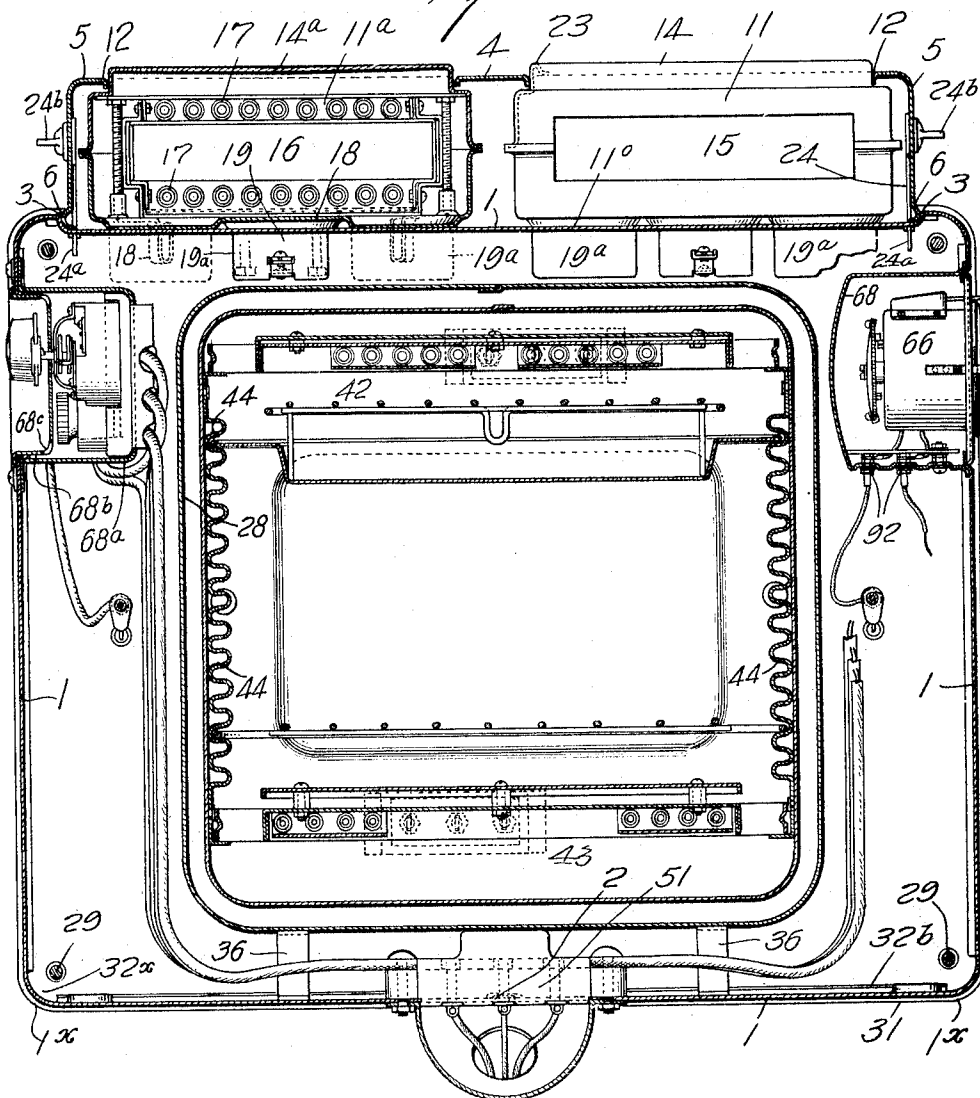
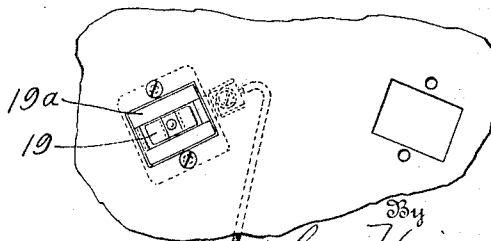


Fig. 2a



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5 Sheets-Sheet 3

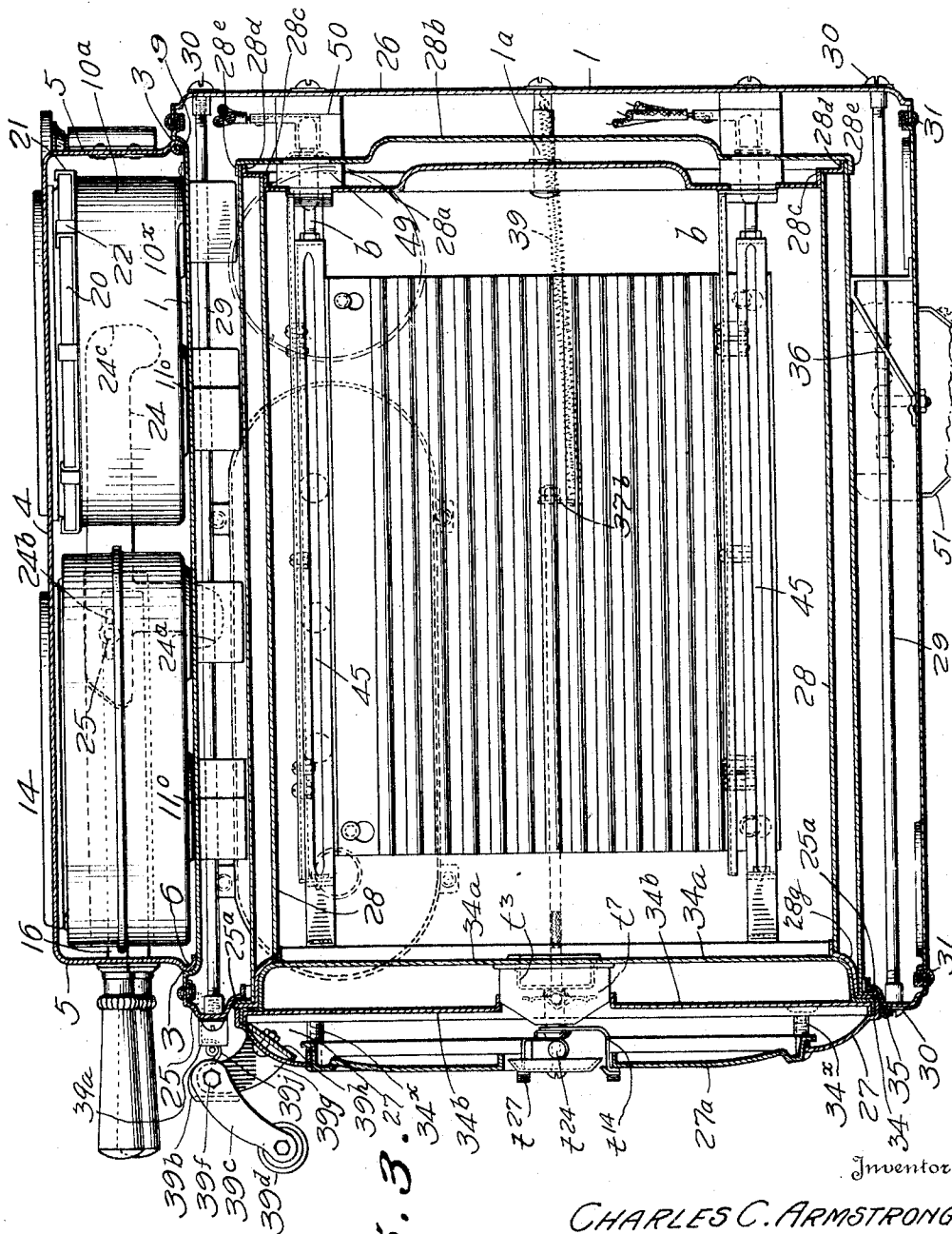


Fig. 3.

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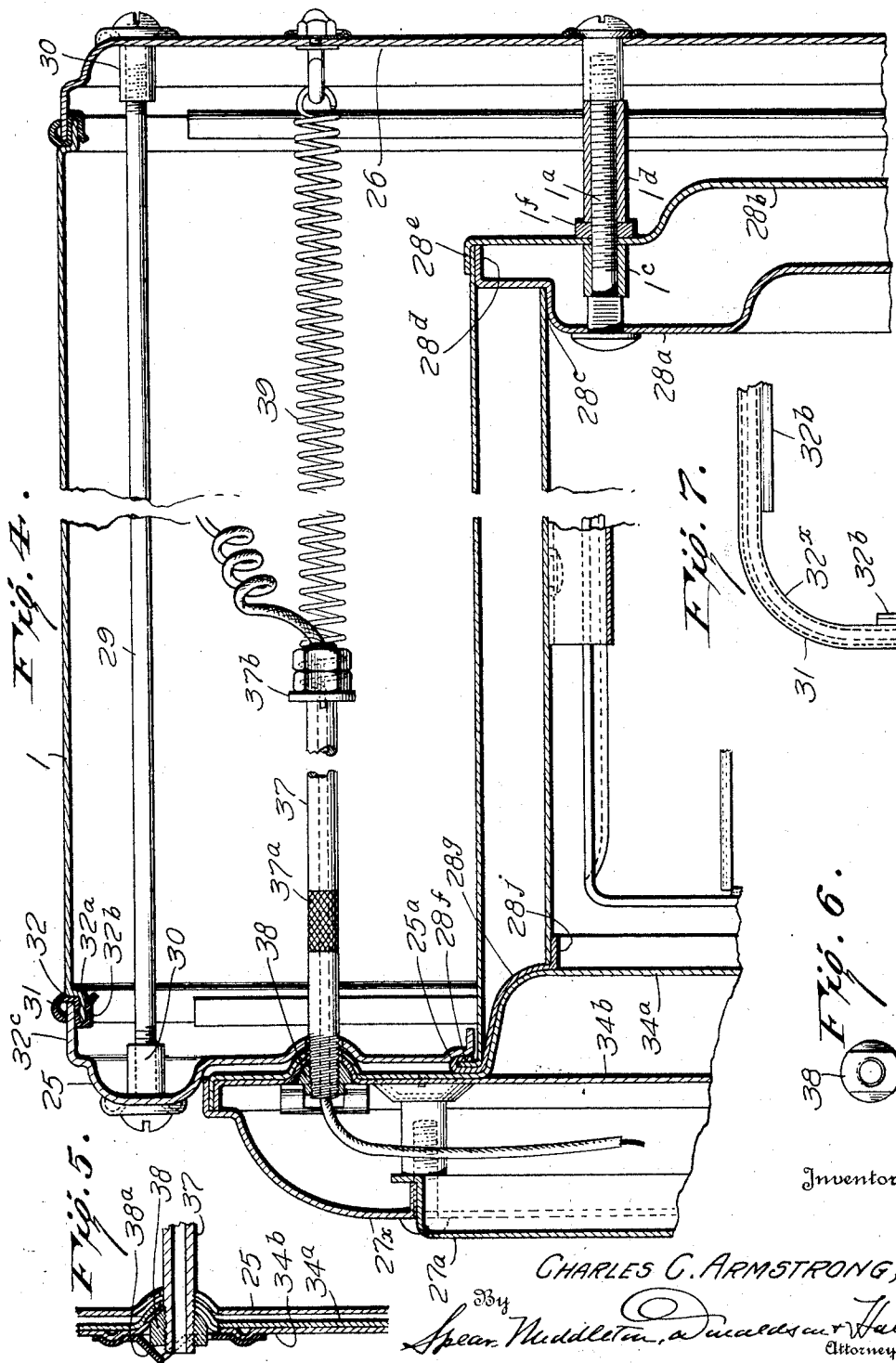
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5 Sheets-Sheet 4



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5 Sheets-Sheet 5

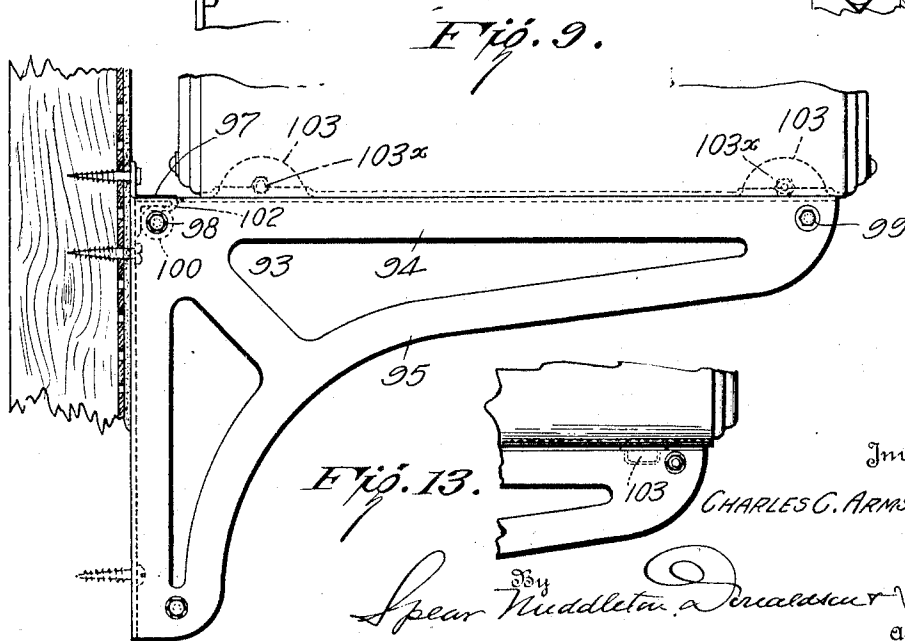
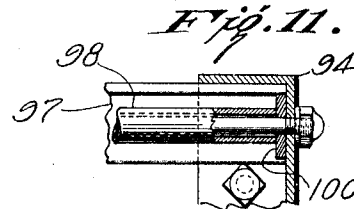
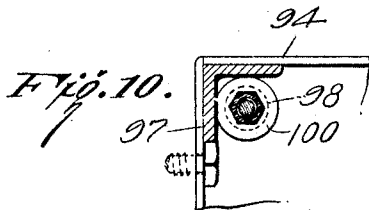
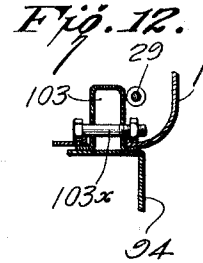
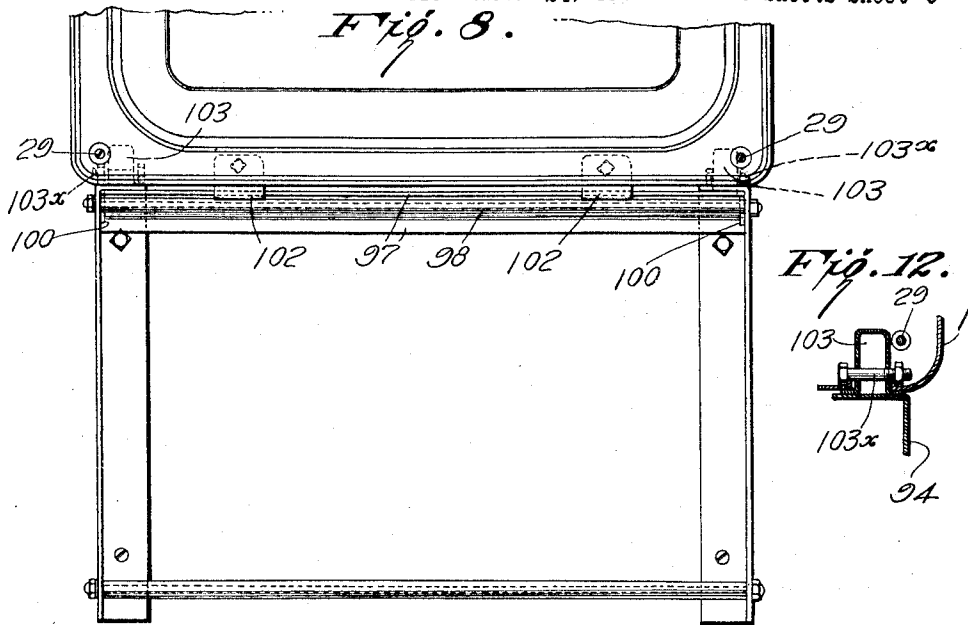
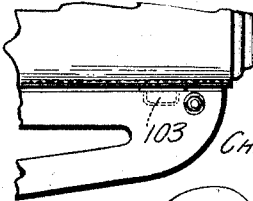


Fig. 13.



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UNITED STATES PATENT OFFICE.

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STOVE.

Application filed March 24, 1927. Serial No. 177,987.

This specification is a continuation in part of application filed Aug. 3, 1925, Serial Number 47,830.

The invention concerns the general construction of the stove and special features and details of construction and organization in connection with the main features. The stove is of parallelepipedon or box like form and contains within its limits all of the cooking appliances provided in stoves built along the general line of a gas range, but instead of being provided with a platform at a point off laterally to one side of the oven in which platform the burners are located, in my organization the platform in which burners are positioned surmounts the oven so that no more space laterally is necessary for the occupancy of the stove than that which is required to accommodate the main body portion in which the oven is located, permitting better heat insulating means and in connection with the cover, ease in cleaning and servicing.

The objects of the invention will appear from the following description taken in connection with the appended claims.

The invention consists in the features and combination and arrangement of parts hereinafter described and particularly pointed out in the claims.

In the accompanying drawings:

Figure 1 is a front view of a stove embodying my invention.

Fig. 2 is a vertical transverse sectional view of the stove.

Fig. 2^a is a detail of an electric contact.

Fig. 3 is a longitudinal vertical section, i. e., from front to rear.

Fig. 4 is an enlarged view of a portion of Fig. 3 the view being taken 90° from Fig. 3.

Figs. 5 and 6 are detail views relating to door supporting means.

Fig. 7 is a view of a bead strip.

Fig. 8 is a front view of a part of the stove showing the bracket for mounting it upon the wall.

Fig. 9 is a side view of Fig. 8.

Figs. 10, 11 and 12 are views of details relating to a supporting bracket for the stove body. Fig. 13 is a detail view of a modification relating to the mounting of the stove upon a bracket.

The main body 1 of the stove is made up of sheet metal, of one piece, stamped to the substantially rectangular form shown in Figs. 2 and 3.

It has but one joint as shown at 2, which may be completed by welding or in any suitable way. The top portion of this main body is countersunk as at 3 to provide a slightly depressed top plate for receiving certain of the heating elements to be supported thereby and for supporting also a cover section composed of a top plate 4 and depending front, rear and lateral side portions 5 which have their lower edges beaded as at 6 to rest with their rounded surfaces upon the corresponding curved margins 3 defining the countersink or depression of the upper wall of the main body of the stove. This cover member is hinged to the main body of the stove at its rear edge 9 so that it may be swung up to expose the upper heating units or elements indicated generally at 10^a, 11, 11^a, located within the chamber or compartment formed between the said cover 4 and the top plate or portion of the main body 1. The cover plate has openings as at 12, Fig. 2 through which the heating elements are exposed on which utensils are placed to be heated.

There are four of these openings in the form of the invention chosen for illustration, three of which are shown, and those at the rear are for the open heating elements which have clay members, in grooves of which members the heating coils are placed, and from which the heat is directed upwardly against the bottom of the cooking vessels. The two front openings receive plates 14, 14^a of the heating units instead of grates. The plate at the right has a depressed surface and the plate at the left is plain, and both can be used as griddles or serve as heating plates for the vessel placed thereon.

The front wall of the cover member is provided with openings for the insertion or removal of waffle irons and a toaster, into and away from the front heating units, the toaster being located at the right hand heating unit, and the waffle iron being used at the left hand heating unit as shown respectively at 15, 16, Fig. 2.

The heating units at the front marked 11 and 11^a are of an enclosed type in that they do not direct heat up immediately against the vessel as do the rear heating units above mentioned, and it will be seen from Fig. 2 showing one of these front heating units in section that the plates 14, 14^a above mentioned are provided by the upper extensions of the casings of these forward heating units

which extensions project upwardly through the openings in the top of the cover member in which they closely fit and form closures therefor against air circulation.

5 This feature of the top of the heating unit acting as a closure for the openings in the cover 4 is present at all the heating units to provide for the dead air space within the said cover 4.

10 The front heating units comprise an enclosing casing which may be made of upper and lower sections secured together, the bottom of the casing resting on the top plate or portion of the main body 1. Within the
15 casing of the heating units 11, 11^a heating or resistance coils 17 are located supplied with current through suitable circuit connections, and there are two series of these coils between which the waffle irons and toaster are
20 received. Each of these heating units is provided with spring contacts as at 18, which engage electric contacts mounted on the top plate of the main body 1, for which purpose spring members 19 are mounted in
25 insulating blocks 19^a secured to the under side of the top plate 1 which is provided with an opening through which the spring contact members 19 are exposed to receive the depending spring contacts 18 of the heat-
30 ing elements. All the heating units or elements, i. e., both the front and rear sets are provided with these contacts to engage the companion socketed contacts of the top 1. All the heating units are protected against
35 drafts and loss of heat by the movable cover 4 which encloses them.

This cover member 4 provides a dead air space in which the heating elements above described are located, and by which the heat
40 is conserved, the dead air serving as a heat insulation. This feature is also carried out in connection with the heating elements themselves.

Access is gained to the heating units by
45 lifting up the cover member 4 for which purpose the toaster and waffle irons must be removed, leaving, however, the heating units 11, 11^a in place, whereupon any heating unit can be lifted out of place or can be replaced.
50 By simply lifting the heating units out of place the top plate can be cleaned.

The cover member 4 may be held in its raised position by arms 24 pivoted at 25 to the depending sides 5 of the cover. These
55 arms are provided with hooks 24^a which engage slots or openings in the top plate of the main body 1 by which said cover will be held down.

When, however, the arms are turned on
60 their pivots by grasping and turning the finger pieces 24^b on the outside of the cover and attached to the pivots of the arms, said arms can be manipulated to release the catches or hooks 24^a from engagement with
65 the top plate 1 and the arms can be set in

position to support the cover in elevated position, the end portions 24^c of the arms having been brought to bear on the top plate 1.

The front body panel 25^x and the back
70 plate 26 of the stove are of sheet metal like the main body and like the cover member 4 and the casings of the heating elements above described and also like said parts they are stamped to shape. The front panel or
75 stamping is provided with an opening to receive the oven 28 within the main body of the stove, the door of which is indicated generally at 27. The back plate, the front panel and the main body 1 are held together
80 by rods 29 and screws 30.

A bead strip 31 is inserted between the meeting edges of the main body 1 and the back plate and also between the main body
85 and the front panel or frame.

The main body is bent or shouldered at 32, Fig. 4, leaving a rim portion 32^a and the bead strip has a channelled portion 32^b embracing this rim portion and fitting against the shoulder whence the bead extends out-
90 wardly and is rounded or curved at its outer portion 31 to engage the flange 32^c of the adjacent member, back or front panel, the said flange fitting against the channelled portion of the strip. This bead not only
95 provides a finish for the joint or meeting edges of the members and hides any raw edges of the white enamelled parts but also serves to strengthen the joint by reason of the reinforcement afforded against inward
100 displacement.

Each bead member is made in one continuous piece or strip. This strip has its inner flange cut away at 32^x, Fig. 7, at the point
105 where the strip is carried around the corner of the body. At this point the wall of the body 1 is curved as shown at 1^x, Fig. 2, adding strength to the structure as well as to its finished appearance. This bead strip
110 is shaped to the form of an open frame corresponding to the cross sectional shape of the body 1 and in assembling the parts it is slipped onto the edge of the body, then the back or front plate of the body is
115 slipped into its place in the bead and thereafter the tie rods 29 are placed in position, and all parts are drawn together.

Within the main body 1 the oven member 28 is supported in spaced apart relation to the top, bottom back and sides thereof.
120 This oven member is composed of inner and outer sheet metal walls with a dead air space between them at the top, sides, back and bottom of the oven. There is a ventilator at
125 *d* in the front door for ventilating the space within the oven.

The rear wall of the oven is formed of spaced apart sheet metal members 28^a, 28^b, Figs. 3 and 4, with a dead air space for
130 heat insulation. The back plate 28^a is

shouldered at 28^c and flanged at 28^d to bear against the inner side of the main walls of the oven and these joints are welded. The back plate 28^b is flanged at 28^e to embrace the outer wall of the oven, but need not be welded at this point because this back plate is mechanically held as will be described. The oven is insulated against loss of heat both by the dead air space between its walls and also by the dead air space between the oven body and the wall 1 of the main body of the stove.

This feature of insulation by dead air is carried out as above described in connection with the upper burners, both by reason of the casings enclosing the heating elements proper and because of the use of the cover member 4.

The oven is supported at its rear end in spaced apart relation to the back of the main body by two screws or bolts 1^a. This leaves a dead air space for insulation against the escape of heat at the rear of the stove.

The bolts have each a rectangular portion, with a spacer 1^c between the shoulder thereof and the inner side of the back wall 28^b of the oven. Nuts 1^f on bolts 1^a hold back wall 28^b against spacer 1^c and there is a spacer 1^d between nuts 1^f and the hollow nut or thimble, which is threaded on the bolt and forms the connection between it and the rear wall of the body 1.

The oven is supported at its front end in the panel member 25 for which purpose said panel or front member is stamped to provide a seat at 25^a of curved form to receive the rounded surface of the turned bead or edge 28^f on the member 28^e which forms the front end or portion of the oven proper. This bead is formed on a flange projecting from the said member 28^e. This member 28^e is secured to the walls of the oven by its bead 28^f and by a weld at 28^g, and it is curved to provide a seat for the door. This door 27 is hinged at its lower edge to the front body panel 25 at 35 and it is composed of a front portion, a panel 27^a, a back 34^a curved to fit the curved seat at the front of the oven, and an intermediate member 34^b. These members of the door are held together by their interlocking flanges at 34 and by male and female screws 34^x which connect the door members 27^a, 27^b, 34^a, and 34^b, and make a rigid door structure. These screws are located near the corners of the door structure. The inner heads of these screws are countersunk in recesses formed in the plane or flange portions of the members 34^a, 34^b, where these contact and make a double thickness of material. The part 28^e of the oven and the inner plate 34^a of the door are stamped out in the same die at the same time so that they will fit perfectly where they contact with each other.

A door of the construction described pro-

vides two dead air spaces, one on each side of the central plate or member 34^b and these spaces provide heat insulation at these points.

By my construction the insulation of the oven against the loss of heat is carried out to a maximum degree. The features entering into this are the double wall construction of the oven itself, with a dead air space between its walls, also the dead air space between the oven and the wall of the body and the further dead air space between the top of the body and the cover member 4, which with the dead air space over the top of the oven provides, together with the dead air space between the top walls of the oven itself, a triple dead air space against the loss of heat upwardly from the oven, and at the front the double dead air spaces of the door provide for heat insulation here. The oven is removable and can be drawn out or pushed into place as one body.

When pushed into the main body, it engages inclines on terminal block 51 or skids 36 which raise it to the proper level properly spaced from the bottom of the main body, and also properly positioned to receive hollow nut or thimble for holding the oven in place and effect alignment of insulator block 49 between rear ends of oven and blocks 50, carried by main body, said blocks 50 supporting contacts whereby current will be supplied to the heating coils with which oven is provided, as will be described. The front portion of the oven may be said to have a self adjusting action, the opening in the panel member 25 and seat 25^a, being slightly larger than the bead and outer sheet metal wall of oven.

This construction is therefore one in which the front end of the oven while held in position to receive the door within its recess will have a slight floating or accommodating action to make it conform to any slight misalignment with the part of the door which enters its recess and makes a tight joint.

The door when lowered to substantially a horizontal position to gain access to the oven is held in this position by side rods 37, which are pivotally connected to the door by semi-spherical members 38 fitting in recesses in the door frame, said rods having springs 39 connected to their inner ends and to the rear wall of the main body of the stove by which the door is under stress tending to balance or close it.

These rods and springs lie in the space between the sides of the oven and the sides of the main body.

The sockets in which the hemispherical pivots 38 work are formed in the double thickness of metal provided by the contacting flanges of the members 34^a, 34^b. There is a clip 38^a at each of the hemispherical

front pivot bearings 38 of the rods 37, which clip engages the back or square shoulder on the hemispherical members. The lowered or horizontal position of the door is determined by the plate 37^b on the rod 37 coming against the inner side of the front wall 25 and acting as a stop. This plate has the spring 39 connected thereto.

In order to take out the oven it is necessary to drop the front down further than normal horizontal or lowered position, and for this purpose the rods which support the oven door in lowered position are provided with knurled portions 37^a by which the rods may be turned and disconnected from the nuts 38 and the door then can be lowered far enough to not obstruct the oven in its removal.

The door is provided with a handle by which it may be manipulated.

This handle as well as its keeper 39^a is made of sheet metal stamped up into shape. The handle comprises a cross bar 39^b of channel form with arms 39^c extending forward. Between the front ends of these the handle proper or grip 39^d is secured. The cross bar presents end walls which receive the pivots 39^e which are supported by bracket arms or ears 39^f. These have base portions 39^h on the inner side of the front wall of the stove door to which they are screwed, the said arms passing through slots in the front wall.

The cross bar of the handle has an integral extension 39^g bent upwardly and then downwardly with a rounded upper portion to engage under a lip 39^h stamped from a part of the keeper 39^a which is secured to the front member of the stove.

The oven is provided with upper and lower electric heaters 42, 43, but as the specific form of these heaters is not claimed herein, but in another application, they are not illustrated nor described in detail. Side racks 44 are provided for receiving the cooking utensils at different heights.

In removing the oven from the main body for cleaning, repair or replacement, the electric heating units 45 are first removed, thus removing their contacts *b* from engagement with complementary contacts.

At the rear corners of the stove cover 4 platforms 4^a are provided to give additional space for cooking utensils not in immediate use or when the cooking operation has been completed. These platforms may be turned horizontally to overlie the cover member or they may be removed by lifting them from their pivot bearings. To turn them over the top of the cover member 4 they are first lifted slightly from normal position.

The stove is specially adapted to be mounted on brackets or a bracket frame 93 which is to be secured to the wall and the

stove is thus elevated from the floor and has the space beneath it entirely free.

This bracket frame is composed of arms 94 made of one piece of flat sheet metal with side portion 95 curved backwardly and downwardly, preferably perforated, and having the top and rear edges flanged inwardly at right angles to said side portions. The pair of side bracket arms are connected at the rear by a cross-bar of angle iron 97, the ends of the horizontal flange of which fit under the horizontal flanges of the arms 94 and its vertical flange rests against the front side of the vertical flanges of the arms 94. In other words, the angle iron cross-bar 97 fits in the rear upper corners where the flanges of bracket arms 94 join each other. The side bracket arms are held together by three tie rods 99 passing through spacer tubes 98. On the rear tie rod, at each end, there is a washer 100 bearing on the inner side of the flanges of cross-bar 97 and holding cross-bar in place.

On this rear cross bar there are clips 102 which embrace the forward edge of the horizontal flange of said cross bar and have upwardly extending portions adapted to be screwed to the studding of the wall of the kitchen.

These clips are free to be moved along the rear cross bar to suit the position of the studding. If the stove is to be supported from a brick wall, expansion bolts may be used. The horizontal arms of the brackets are provided with upwardly extending bosses 103 which are to fit up into the recesses formed in the bottom of the stove.

When the stove is mounted on brackets the bosses 103 project up through openings in the bottom of the stove. These openings have their edges turned upwardly slightly. The bosses 103 may be in the form of sheet metal shells welded to the bracket. Bolts 103^a passing through the bosses and resting on the flanged edges of the openings and within the body hold the stove body to the brackets.

Certain features disclosed herein are claimed in co-pending application filed by me Aug. 3, 1925, Serial Number 47,830.

I claim:

1. A stove comprising a sheet metal body of cubical form of one piece, stamped to provide a top plate, sides and bottom with a single joint along the bottom, a stamped sheet metal back member, a stamped sheet metal front member, and having a door opening, a stamped sheet metal door hinged to the body, an oven within and spaced apart from the body and supported at its front end by the front member, a heater within the oven, and tie rods extending from the front member to the back member through the space between the oven and the

body for holding the main body, front and back together, substantially as described.

2. In combination in a stove a main body of sheet metal having a top plate, sides and bottom, and back and front members held in place thereon, an oven within said main body spaced apart therefrom at top, sides, bottom and back and supported at its front end by the front member of the main body, a heating element within the oven, means for supporting the oven at its rear end from the main body, and a door pivotally mounted on the front member of the main body and having an inwardly protuberant portion seating in corresponding recess in the front end of the oven, substantially as described.

3. In combination in a stove a main body of sheet metal having a top plate, sides and bottom, and back and front members held in place thereon, an oven within said main body spaced apart therefrom at top, sides, bottom and back, and supported at its front end by the front member of the main body, means for supporting the oven at its rear end from the main body, heating means within the oven, and a door pivotally mounted on the front member of the main body and seating against the front end of the oven, said oven being formed of spaced apart walls at its top, sides, bottom and back, providing heat insulation, and the said door being of spaced apart walls providing heat insulation for the front of the oven, substantially as described.

4. In combination in a stove the main body, an oven spaced apart therefrom and supported therein to have limited self adjustment and a door hinged to the main body and having a protuberant portion to fit a corresponding seat in the front end of the oven, which will enable said oven to adjust itself to make a tight joint with the door under contact of the latter therewith.

5. In combination in a stove a main body, an oven member supported therein in spaced apart relation thereto and having limited self adjustment within the said main body, and a door hinged to the main body and having a portion of substantially tapered form to fit a corresponding seat at the front end of the oven whereby said oven will adjust itself to make a tight joint with the door.

6. In combination a main body, an oven within the same, spaced apart therefrom, bolts or screws supporting the oven from the back of the main body and spaced apart therefrom, a sheet metal front for said main body, said oven having a flange with a rounded bead engaging a seat on the sheet metal front, said oven at its front having a door seat which is substantially tapering, and a door hinged to the front of the stove and having a corresponding tapering por-

tion to engage the seat of the oven, substantially as described.

7. In combination the main body, an oven therein and spaced apart therefrom, means for detachably connecting the oven to the main body and skids within the main body on which the oven slides and is elevated to its place for attachment to the main body, and a front member for the main body having a seat to receive and support the front end of the oven, substantially as described.

8. In combination in a stove, a main body having a front member, an oven within the main body spaced apart from the walls thereof and composed of spaced apart walls, said oven at its front end having a member closing the space between the walls thereof and a flange connected to a flange of the outer wall, said flange extending laterally beyond the oven, said front member being of sheet metal and having a seat for said flange on the outer side of said front member, and a door hinged to the front member and having an inwardly extending portion seated in a recess formed by the front member of the oven, substantially as described.

9. In combination in a stove, a sheet metal body, having a front member, a door hinged thereto, said door comprising three sheet metal members, i. e., an outer, an inner and an intermediate member, the inner and intermediate members being in contact for a portion of their area and being spaced apart at their central portions by reason of the inner member having its central portion extending inwardly in relation to the space within the stove, said members having a flanged connection at their edges, an oven within the stove having a seat at its front end, in the form of a recess receiving the protuberant portion of the inner member of the door, and heating means within the oven, substantially as described.

10. In combination, a main stove body, an oven supported from the body at its rear end in spaced apart relation thereto, a stove front supporting the front end of the oven with play, said oven at its front end having a seat for the door, and a door having a portion to engage said seat, the play of the front end of the oven insuring its alignment with the contacting part of the door to make a tight closure to said oven, substantially as described.

11. In combination in a stove, a main body portion providing top, sides and bottom, back and front members and a bead strip inserted between the meeting edges of the body and the front and back members, said bead strip having flanges engaging the said meeting edges, substantially as described.

12. In combination in a stove, a main body portion providing top, sides and bottom, back and front members and a bead strip inserted between the meeting edges of

the body and the front and back members, said bead strip having flanges engaging the said meeting edges, a portion of the inner flange of the bead being cut away at the point where the bead is bent around the corner of the body, substantially as described.

13. In combination in a stove with the main body, back and front, a bead strip between lapped edges of the said members, said strip having an inner flange bearing on the inner side of the joint, an intermediate flange lying between the lapped flanges, and a flange lying on the outer side of the joint.

14. In combination in a stove, a main body providing top, sides and bottom, and with the front and rear edges provided with a flange and a shoulder, a front and back member having their edge portions adjacent said flange and said shoulder, tie rods for drawing the front and back members against the shoulder and bead strips interposed between the meeting edges of the body and the front and back members.

15. In combination in a stove, a body, heating elements projecting up from the top of the body, a cover member hinged to the body and enclosing the heating elements, and means locking the cover in closed position and for supporting said cover in raised position said locking and supporting means being pivotally mounted on the inner faces of the sides of the cover member with means extending through said sides for operating the said locking and supporting means.

16. In combination in a stove, a body, heating elements projecting up from the top of the body, a cover member hinged to the body, and enclosing the heating elements, means locking the cover in closed position and for supporting said cover in raised position, said means comprising arms pivoted to the cover member intermediate of their length having hooks to engage the stove top and adapted when swung downwardly to rest with their ends on the stove top, and

finger pieces attached to the pivots of the arms and located outside the cover for operating said locking and supporting means substantially as described.

17. In combination in a stove, a body, heating elements at the top of the body, a cover member hinged to the body, arms pivotally mounted on the inner faces of the sides of the cover member with their pivots extending through said sides, finger pieces on the outside of the cover connected to said pivots by which they may be turned to operate the arms, said arms having hook members depending therefrom adjacent the pivots and engaging parts of the stove top, the free ends of said arms being adapted to rest on the top of the stove to support the cover, the hook members facing in the opposite direction in respect to the supporting ends of the arms, substantially as described.

18. A stove comprising a sheet metal body of cubical form in one piece having a top plate, a bottom, and sides, a sheet metal back member, a sheet metal front member having a door opening, a sheet metal door hinged to the body, an oven within the body spaced apart therefrom and supported at its front end by the front member and tie rods extending from the front member to the back member through the space between the oven and the body for holding the main body, front and back, together, substantially as described.

19. In combination in a stove, a body, an oven within the body having spaced apart walls providing a dead air space, said oven being spaced apart from the body to provide an additional dead air space, said oven being mounted within the body to have play and a door hinged to the body and having a portion to engage the oven to center the same relative to the body, substantially as described.

In testimony whereof I affix my signature.

CHARLES C. ARMSTRONG.